UKAS MEDICAL
8988

Haemochromatosis (HFE) – OMIM 235200

Background

Haemochromatosis is the name given to the condition of iron overload. This can occur through increased iron absorption from food or from blood transfusion. The human body has limited means of getting rid of excess iron which may be deposited over time in tissue and organs, particularly the liver, causing damage and leading to serious illness if untreated. Haemochromatosis resulting from increased iron absorption occurs in some people due to a hereditary condition. The most common form of Hereditary Haemochromatosis (also known as Genetic Haemochromatosis) in people of North European ancestry is caused by a mutation in the *HFE* gene (OMIM 613609), (HFE:c.845G>A, p.Cys282Tyr) and is inherited in an autosomal recessive pattern, which means that both copies of the gene have mutations (inherited one from each parent). People who only carry one copy of the mutated gene are very rarely affected. HFE-related haemochromatosis is an adult-onset disorder with low penetrance (not everyone who is homozygous for p.Cys282Tyr will develop iron-overload) and testing of minors is not recommended. Documented iron-overload-related disease is rare in patients who are compound heterozygotes for p.Cys282Tyr and p.His63Asp (HFE:c.187C>G) mutations in the HFE gene. Where iron-overload is seen, other contributing factors should be considered (e.g. Alcohol consumption, fatty liver or metabolic syndrome).

Recommended Clinical Referral Criteria

- Patient is over the age of 18 and meets the clinical criteria
- Patient is under the age of 18 and there is a clear clinical indication (e.g. altered iron status or evidence of altered liver disease). Requests for testing in patients under the age of 18 must come from either a haematologist or a clinical geneticist.
- Family history in a patient over the age of 18

Molecular Analysis

Common mutation analysis: Real-time allelic discrimination assay for the two common *HFE* mutations – c.845G>A (C282Y) and c.187C>G (H63D)
Family follow-up: Testing for known familial mutations in *HFE* gene in first degree relatives only. Testing in children is not recommended.

Requirements (Price available on request)	TAT(calendar days)
Diagnostic test for two common *HFE* mutations (c.845G>A (C282Y); c.187C>G (H63D))	42
Family follow up testing	42

Contact Details
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Sample Requirements

Blood – 5ml in EDTA (1ml neonates/infants);
please contact lab prior to sending a
prenatal sample.

Please label samples with three identifiers and date of collection

All samples must be accompanied by request form

Consent for testing & DNA storage is assumed when request for test

Links

Orphanet
http://www.orpha.net/
OMIM
http://www.omim.org/
Genetic Test Registry
http://www.ncbi.nlm.nih.gov/gtr/
Support
The Haemochromatosis Society
https://www.haemochromatosis.org.uk/